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(71) Applicants (*for all designated States except US*): UNIVERSITA' DEGLI STUDI DI MILANO [IT/IT]; Via Festa del Perdono, 7, I-20122 Milano (IT). UNIVERSITA' DEGLI STUDI DI PAVIA [IT/IT]; Corso Strada Nuova, 65, I-27100 Pavia (IT). UNIVERSITA' DEGLI STUDI DI BOLOGNA [IT/IT]; Via Zamboni, 33, I-40126 Bologna (IT).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): VIGO, Daniele

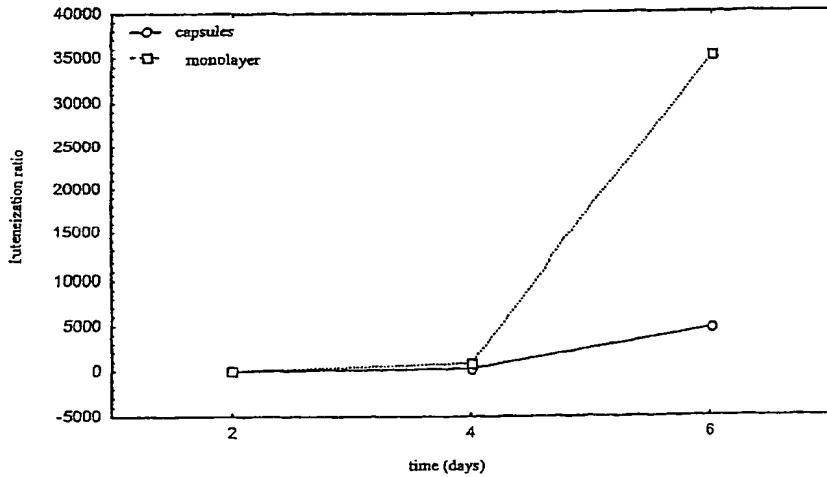
[IT/IT]; Università Degli Studi di Milano, Via Festa del Perdono, 7, I-20122 Milano (IT). RUSSO, Vincenzo [IT/IT]; Università Degli Studi di Milano, Via Festa del Perdono, 7, I-20122 Milano (IT). FAUSTINI, Massimo [IT/IT]; Università Degli Studi di Milano, Via Festa del Perdono, 7, I-20122 Milano (IT). STACCHEZZINI, Simona [IT/IT]; Università Degli Studi di Milano, Via Festa del Perdono, 7, I-20122 Milano (IT). CONTE, Ubaldo [IT/IT]; Università Degli Studi di Pavia, Corso Strada Nuova, 65, I-27100 Pavia (IT). TORRE, Maria, Luisa [IT/IT]; Università Degli Studi di Pavia, Corso Strada Nuova, 65, I-27100 Pavia (IT). ACCORSI, Pier, Attilio [IT/IT]; Università Degli Studi di Bologna, Via Zamboni, 33, I-40126 Bologna (IT). GALEATI, Giovanna [IT/IT]; Università Degli Studi di Bologna, Via Zamboni, 33, I-40126 Bologna (IT). SPINACI, Marcella [IT/IT]; Università Degli Studi di Bologna, Via Zamboni, 33, I-40126 Bologna (IT).

(74) Agents: LONG, Giorgio et al.; Jacobacci & Partners S.p.A., Via Senato, 8, I-20121 Milano (IT).

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(54) Title: THREE-DIMENSIONAL MAMMALIAN OVARIAN FOLLICULAR CELL AND OVARIAN FOLLICLE CULTURE SYSTEMS IN A BIOMATERIAL MATRIX



(57) Abstract: A process for encapsulating and immobilising mammalian stem cells, ovarian follicular cells, gametes, ovarian follicles or mammalian embryos which are able to auto-organise into three-dimensional structures *in vitro*, and express biological functions in a manner similar to that which is observed in the organism *in vivo* is described. The capsules are constituted by: a nucleus containing stem cells, ovarian follicular cells, gametes, ovarian follicles or mammalian embryos and/or a biocompatible and/or biodegradable polymer; a semi-permeable membrane constituted by a divalent or trivalent metal ion salt of alginic acid, optionally cross-linked on the inner and/or outer surface and/or on both surfaces, optionally vehicularising a second or more cellular species. The cells and follicles prepared and cultivated using this methodology are used for the *in vitro* and/or *in vivo* production of peptides, proteins, antibodies, hormones and hormone precursors, metabolites and catabolites typical of these cellular structures, plasma membranes, nuclear membranes, cytoplasmic organelles, somatic cell nuclei or gametes and embryos.

WO 2005/041942 A3



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